1. A ruggedized inverter structure comprising:

an integral frame, the integral frame having

an integral frame right vertical wall,

an integral frame rear vertical wall and

a left vertical wall,

a rectangular base having a rectangular base plate, the rectangular base plate having a front side, a rear side, a right side and a left side, the rectangular base plate front side having a front mounting flange, the rectangular base plate rear side having a rear mounting flange, the rectangular base plate right side having a right vertical wall and the rectangular base plate left side having a left vertical wall, the front and rear mounting flanges and the right and left vertical walls being integral to the rectangular base plate, each having an external and internal surface,

the rectangular base right and left vertical wall external surfaces being coupled to the integral frame's right vertical wall and integral frame left vertical wall's internal surfaces,

a transformer assembly having a transformer, and transformer mounting means for rigidly coupling the transformer to the front and rear mounting flange

2. The ruggedized inverter structure of claim 1 wherein the integral frame right, rear and integral frame left vertical walls are formed from a single homogenous metal sheet.

3. The ruggedized inverter structure of claim 1 wherein the rectangular base plate front and rear mounting flanges and right and left vertical walls are formed from a single homogenous metal sheet.

4. The ruggedized inverter structure of claim 1 wherein the integral frame right, rear and integral frame left vertical walls are formed from a first single homogenous metal sheet and the rectangular base plate front and rear mounting flanges and right and left vertical walls are formed from a second single homogenous metal sheet.

5. The ruggedized inverter structure of claim 1 wherein the means for rigidly coupling the transformer to the front and rear mounting flanges further comprises:

a transformer mounting plate, the mounting plate having a front end coupled to the rectangular base having a rectangular base plate, the rectangular base plate having a front end and a rear end, the front end being coupled to the front mounting flange, the rear end being coupled to the rear mounting flange,

a bolt passing through the center of the transformer and through the center of the transformer mounting plate to couple the transformer to the mounting plate.

6. The ruggedized inverter structure of claim 5, wherein the transformer further comprises a resin filled center region, the resin being loaded with a filler having an improved thermal conductivity, a recess and a bolt clearance hole co-axial to the recess are formed in the resin filled center region for receiving a bolt passing through the bolt clearance hole and through the transformer mounting plate to couple the transformer to the transformer assembly.

7. The ruggedized inverter structure of claim 1 further comprising:

a right and left power module, each respective power module having a base plate, the right power module base plate being coupled to the integral frame right vertical wall and the left power module base plate being coupled to the integral frame left vertical wall, each respective base plate operating to stiffen the corresponding integral frame vertical wall.

8. The ruggedized inverter structure of claim 7 wherein each power module further comprises:

a compression bar,

a printed circuit board having a first and second surface and at least a first row of semiconductor switches mounted in the printed circuit board, each switch having a plastic case surface and a metal switch tab surface, each plastic case surface being

positioned to be in a plastic case plane, the plastic case plane being parallel to and spaced apart from the printed circuit board first surface,

a printed circuit board insulator layer between the compression bar and the printed circuit board second surface,

a rubber compression bar between the printed circuit board first surface and the plastic case plane,

a semiconductor metal switch tab insulator layer positioned between the semiconductor metal switch tab surfaces and the base plate,

a plurality of bolts being passed through the base plate and through the compression bar and tightened, the bolts drawing the compression bar against the circuit board insulator layer, the circuit board insulator layer against the circuit board, the circuit board against the rubber compression bar, the rubber compression bar against the plastic case plane, the switch tabs against the switch tab insulator layer and the switch tab insulator layer against the base plate, all into compression,

means for coupling the base plate to a corresponding integral frame vertical wall.

9. A ruggedized inverter structure comprising:

an integral and homogenous frame, the integral and homogenous frame having

an integral frame right vertical wall,

an integral frame rear vertical wall and

an integral frame left vertical wall,

an rectangular base formed from a single plate to provide a front mounting flange and a rear mounting flange in parallel plane relation above the plane of an integral and homogenous rectangular base plate, and at least a right vertical wall and left vertical wall extending vertically at right angles from opposite sides of the base plate, each vertical wall surface having an outer and inner surface,

the rectangular base plate being positioned between the inner surface of the integral frame right vertical wall, and the integral frame left vertical wall,

the rectangular base plate being orientated and dimensioned to position and couple the rectangular base right vertical wall outer surface, integral frame rear vertical wall outer surface and integral frame left vertical wall outer surface to corresponding and opposed inner surfaces of the integral frame right vertical wall, integral frame rear vertical wall and integral frame left vertical wall,

a transformer assembly having a transformer coupled to a transformer mounting plate, the transformer mounting plate having a front end and a rear end, the transformer mounting plate front end being coupled to the front mounting flange, the transformer mounting plate rear end being coupled to the rear mounting flange.

10. The ruggedized inverter structure of claim 9 wherein the integral frame right, rear and integral frame left vertical walls are formed from a single homogenous metal sheet.

11. The ruggedized inverter structure of claim 9 wherein the rectangular base plate front and rear mounting flanges and right and left vertical walls are formed from a single homogenous metal sheet.

12. The ruggedized inverter structure of claim 9 wherein the integral frame right, rear and integral frame left vertical walls are formed from a first single homogenous metal sheet and the rectangular base plate front and rear mounting flanges and right and left vertical walls are formed from a second single homogenous metal sheet.

13. The ruggedized inverter structure of claim 9 wherein the means for rigidly coupling the transformer to the front and rear mounting flanges further comprises:

a transformer mounting plate, the mounting plate having a front end coupled to the rectangular base having a rectangular base plate, the rectangular base plate having a front end and a rear end, the front end being coupled to the front mounting flange, the rear end being coupled to the rear mounting flange,

a bolt passing through the center of the transformer and through the center of the transformer mounting plate to couple the transformer to the mounting plate.

14. The ruggedized inverter structure of claim 13, wherein the transformer further comprises a resin filled center region, the resin being loaded with a filler having an improved thermal conductivity, a clearance hole being formed in the resin filled center region, the hole being formed to have a recess.

15. The ruggedized inverter structure of claim 9 further comprising:

a right and left power module, each respective power module having a base plate, the right power module base plate being coupled to the integral frame right vertical wall and the left power module base plate being coupled to the integral frame left vertical wall, each respective base plate operating to stiffen the corresponding integral frame vertical wall.

16. The ruggedized inverter structure of claim 15 wherein each power module further comprises:

a compression bar,

a printed circuit board having a first and second surface and at least a first row of semiconductor switches mounted in the printed circuit board, each switch having a plastic case surface and a metal switch tab surface, each plastic case surface being positioned to be in a plastic case plane, the plastic case plane being parallel to and spaced apart from the printed circuit board first surface,

a printed circuit board insulator layer between the compression bar and the printed circuit board second surface,

a rubber compression bar between the printed circuit board first surface and the plastic case plane,

a semiconductor switch tab insulator layer positioned between the semiconductor metal switch tab surfaces and the base plate,

a plurality of bolts being passed through the base plate and through the compression bar and tightened, the bolts drawing the compression bar against the circuit board insulator layer, the circuit board insulator layer against the circuit board, the circuit board against the rubber compression bar, the rubber compression bar against the plastic case plane, the switch tabs against the switch tab insulator layer and the switch tab insulator layer against the base plate, all into compression,

means for coupling the base plate to a corresponding integral frame vertical wall.

17. A ruggedized inverter structure comprising:

an integral frame, the integral frame having

an integral frame right vertical wall,

an integral frame rear vertical wall and

an integral frame integral frame left vertical wall,

the integral frame rear vertical wall having a right end coupled at a right angle to the distal end of the integral frame right vertical wall, and

the integral frame rear vertical wall having a left end coupled at a right angle to the distal end of the integral frame left vertical wall,

the coupled walls each having a respective inner surface and outer surface, the integral frame right vertical wall and integral frame left vertical walls being in parallel relation to form a channel terminated by the integral frame rear vertical wall,

a rectangular base having,

a rectangular base plate having a front edge, a right edge, a rear edge and a left edge, each respective edge having an extended region of material demarcated for formation into,

a front vertical wall,

a right vertical wall,

an integral frame rear vertical wall, and

an integral frame left vertical wall,

the rectangular base plate front edge extended region of material has a first portion that is formed or bent upward at a first right angle from the plane of the rectangular base plate to form the front vertical wall and a second portion demarcated for formation into a front mounting flange,

the rectangular base plate right edge extended region of material being formed or bent upward at a first right angle from the plane of the rectangular base plate to form the right vertical wall,

the rectangular base plate rear edge extended region of material has a first portion that is formed or bent upward at a first right angle from the plane of the

rectangular base plate to form the integral frame rear vertical wall and a second portion demarcated for formation into a front mounting flange.

the rectangular base plate left edge extended region of material being formed or bent upward at a first right angle from the plane of the rectangular base plate to form the integral frame left vertical wall,

the rectangular base plate front edge extended region of material second portion being bent inward from the plane of the front vertical wall through a second right angle to form a front mounting flange extending toward the integral frame rear vertical wall in parallel plane relation with the base plate, the front mounting flange being separated from and above the base plate by the front vertical wall,

the rectangular base plate rear edge extended region of material second portion being bent inward from the plane of the integral frame rear vertical wall through a second right angle to form a rear mounting flange extending toward the front vertical wall in parallel plane relation with the base plate, the rear mounting flange being separated from and above the base plate by the integral frame rear vertical wall,

the rectangular base plate being positioned between the integral frame right vertical wall, and the integral frame left vertical wall,

the rectangular base plate being orientated and dimensioned to position and couple the rectangular base right vertical wall outer surface, integral frame rear vertical wall outer surface and integral frame left vertical wall outer surface to corresponding and opposed inner surfaces of the integral frame right vertical wall, integral frame rear vertical wall and integral frame left vertical wall,

a transformer assembly having a transformer coupled to a transformer mounting plate, the transformer mounting plate having a front end and a rear end, the transformer mounting plate front end being coupled to the front mounting flange, the transformer mounting plate rear end being coupled to the rear mounting flange.